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|---|---|
| DOVE, TRACY MAE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 20040304

Application Number: 09/162,992
Filing Date: September 30, 1998
Appellant(s): SENOO ET AL.

APR 0 9 2004

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/2/04.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The

Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

*(3) Status of Claims*

The statement of the status of the claims contained in the brief is correct.

*(4) Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

*(5) Summary of Invention*

The summary of invention contained in the brief is correct.

*(6) Issues*

The appellant's statement of the issues in the brief is correct.

*(7) Grouping of Claims*

The rejection of claims 2-4, 6-9 and 12 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

*(8) Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

*(9) Prior Art of Record*

| | | |
|---|---|---|
| EP 0724305 A1 | AKASHI | 7-1996 |
| US 5,522,127 | OZAKI et al. | 6-1996 |

*(10) Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 2-4, 6-9 and 12 are rejected under 35 U.S.C. 103(a). This rejection is set forth in prior Office Action, Paper No. 25 (Final Rejection mailed 11/13/02).

***(11) Response to Argument***

Regarding the 35 U.S.C. 103(a) rejection of Akashi in view of Ozaki, Applicant argues the Patent Office has failed to establish a *prima facie* case of obviousness. The Examiner disagrees and believes the obvious rejection of claims 2-4, 6-9 and 12 is proper.

Applicant states the claimed gel electrolyte cell can achieve a large discharge capacity and a high charging/discharging efficiency as compared to electrochemical cells that employ typical non-aqueous electrolyte (page 7, lines 1-6). It is unclear how this argument applies to the claimed invention because the claims do not contain any limitations regarding discharge capacity or charging efficiency. Furthermore, the prior art (Akashi) teaches the claimed gel electrolyte, not a "typical non-aqueous electrolyte".

Applicant argues the cited art fails to disclose or suggest at least a number of features of the claimed invention. Applicant points out Akashi does not teach or suggest a negative electrode material that includes a graphitized carbonaceous material obtained from meso-carbon microbeads (page 7, lines 7-10). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The cited art (Akashi and Ozaki) teach all of the features of the claimed invention. Specifically, Akashi teaches the gel electrolyte of the claimed invention and Ozaki teaches the negative electrode of the claimed invention. Akashi suggests the negative electrode of the claimed

invention because the reference teaches the negative electrode may be a carbonaceous material such as graphite (5:12-16).

Applicant argues the Office has given little, if any, patentably weight to the claim limitation "obtained from a plurality of meso-carbon micro-beads", which is improper. Applicant asserts this limitation defines structural characteristics (such as specific surface area) of the claimed graphitized carbonaceous material (page 7, lines 11-26). Examiner disagrees and cannot emphasize enough that Ozaki teaches the limitation "obtained from a plurality of meso-carbon micro-beads" and the specific surface area values (page 7, lines 20-21) contained in the Appeal Brief are not contained in the pending claims. Examiner points out the specific surface area values are taught by Ozaki.

Applicant further argues the characterization of the claim term "obtained from a plurality of meso-carbon micro-beads" as a product-by-process limitation is improper. Examiner emphasizes that the obvious rejection contained in the Final Action of 11/13/02 does not characterize the claim term "obtained from a plurality of meso-carbon micro-beads" as a product-by-process limitation. Even though the limitation "obtained from a plurality of meso-carbon micro-beads" is a product-by-process limitation, this is not the argument the Examiner relies on to reject the claims as obvious. In any event, it is important to point out that Akashi teaches a negative electrode comprising a graphitized carbonaceous material. Akashi does not teach how the graphitized carbonaceous material is produced. Thus, since the limitation "obtained from a plurality of meso-carbon micro-beads" is a product-by-process limitation, the burden shifts to Applicant to provide an unobvious or unexpected difference between Akashi and the claimed invention (MPEP 2113). Applicant has not provided any evidence of an unobvious

or unexpected difference between Akashi and the claimed invention. Applicant's argument with respect to the process limitation are not relevant because Ozaki teaches the limitation.

Applicant's assertion that Examiner chose a negative electrode carbonaceous material out of a laundry list of possible negative electrode active materials is not convincing (page 7, lines 27-30). A list of only three possible materials for the negative electrode material (lithium, lithium alloy or carbonaceous material) is hardly considered "a laundry list".

Applicant argues Akashi and the claimed invention seek to solve different problems in the art. Applicant argues the claimed invention can provide enhanced discharge capacity and charging/discharging efficiency (page 8, lines 3-10). An object of the invention of Akashi is to provide a cell exhibiting an excellent discharge capacity (2:46-47). Furthermore, Figure 5 of Akashi shows charging and discharging efficiencies of the cells were 90% or higher at both the second and fifth charging and discharging cycles (11:15-17). Thus, this argument is not convincing.

Applicants main argument is that the Patent Office cannot rely solely of Ozaki to remedy the deficiencies of Akashi because the teachings are not combinable (page 8, lines 11+). Applicant argues Ozaki teaches away from its combination with Akashi because Ozaki disfavors the use of propylene carbonate as an organic solvent of the electrolyte (required by pending claims). Ozaki states "propylene carbonate is not employed because it decomposes to generate a gas during charging" (7:6-8). However, Ozaki is not applied to teach the electrolyte of the instant claims. Ozaki teaches a negative electrode comprising a graphitized carbonaceous material obtained from a plurality of meso-carbon micro-beads is known in the art. One of skill would be motivated to use the negative electrode of Ozaki for the negative electrode of Akashi

because Akashi clearly suggests a negative electrode comprising a graphitized carbonaceous material. Furthermore, it is well known in the art that propylene carbonate decomposes when contacted with a graphite negative electrode. Applicants own disclosure teaches in non-aqueous electrolyte cells employing propylene carbonate as a main solvent and graphite type carbonaceous materials as a negative electrode, propylene carbonate is decomposed in a known manner on the negative electrode with gas evolution (page 5, lines 6-17). It is important to point out that the Ozaki reference teaches propylene carbonate is not favorable as the only solvent. The claims only require as little as 10 mol% of propylene carbonate. Furthermore, the specification indicates that the claimed invention also results in decomposition of propylene carbonate. On page 6, line 1-3 the specification states a graphite material of smaller particle size is less susceptible to decomposition of propylene carbonate, which suppresses the discharge capacity loss. On page 11, lines 7-12 the specification states the claimed negative electrode graphitized carbonaceous material suppresses discharge capacity losses. This indicates that the propylene carbonate of the claimed secondary cell does, at least to some degree, undergo decomposition. Examiner emphasizes that Akashi teaches combining a graphite negative electrode with an electrolyte containing propylene carbonate. Thus, the prior art does teach and suggest using a propylene carbonate solvent for the electrolyte with a graphitized carbonaceous material negative electrode.

Thus the argument that the references are not combinable is not convincing for at least the following reason:

1. Ozaki is applied as a secondary reference to teach a known negative electrode material comprising a graphitized carbonaceous material obtained from a plurality of meso-

carbon micro-beads. Ozaki is not applied to teach the electrolyte of the claimed invention (taught by primary reference);

2. The claimed invention is not limited to a propylene carbonate solvent that does not decompose in the presence of the graphite negative electrode. The invention only indicates that the decomposition is "suppressed"; and

3. The combination of the claimed electrolyte with a graphitized carbonaceous material is taught by the prior art. Akashi teaches and suggests using a propylene carbonate solvent for the electrolyte with a graphitized carbonaceous material negative electrode.

Ozaki teaches that the use of the graphitized carbonaceous material obtained from a plurality of meso-carbon micro-beads lead to increased cell capacity due to smooth intercalating of lithium at charging (3:12-14). Akashi teaches the claimed secondary cell expect for the negative electrode. However, Akashi at least suggests the negative electrode of claimed invention because Akashi teaches the negative electrode may be a carbonaceous material such as graphite (5:12-16). Both Ozaki and Akashi teach non-aqueous secondary cells having a negative electrode including graphite. Thus the references are combinable.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (page 9, lines 10-19), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Note the sections of the

specification that teach propylene carbonate decomposes in the presence of a graphite negative electrode are contained in the Background of the Invention part of the disclosure. This is considered admitted prior art ("decomposed in a known manner", page 5, line 8).

Accordingly, Examiner respectfully requests that the rejection of Claims 2-4, 6-9 and 12 under 35 U.S.C. 103(a) be sustained.

Respectfully submitted,

Tracy Dove
Patent Examiner, Art Unit 1745

tmd
March 4, 2004

Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

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Conferee Patrick Ryan

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Conferee Steve Griffin